

THE NEAR EARTH ASTEROID MEDICAL CONDITIONS LIST

Y.R. Barr¹, S.D. Watkins¹

¹ The University of Texas Medical Branch, Galveston, Texas.

Purpose: The Exploration Medical Capability (ExMC) element is one of six elements within NASA's Human Research Program (HRP) and is responsible for addressing the risk of "the inability to adequately recognize or treat an ill or injured crewmember" for exploration-class missions. The Near Earth Asteroid (NEA) Medical Conditions List, constructed by ExMC, is the first step in addressing the above-mentioned risk for the 13-month long NEA mission. The NEA mission is being designed by NASA's Human Space Flight Architecture Team (HAT). The purpose of the conditions list is to serve as an evidence-based foundation for determining which medical conditions could affect a crewmember during the NEA mission, which of those conditions would be of concern and require treatment, and for which conditions a gap in knowledge or technology development exists. This information is used to focus research efforts and technology development to ensure that the appropriate medical capabilities are available for exploration-class missions.

Scope and Approach: The NEA Medical Conditions List is part of a broader Space Medicine Exploration Medical Conditions List (SMEMCL), which incorporates various exploration-class design reference missions (DRMs). The conditions list contains 85 medical conditions which could occur during space flight and which are derived from several sources: Long-Term Surveillance of Astronaut Health (LSAH) in-flight occurrence data, The Space Shuttle (STS) Medical Checklist, The International Space Station (ISS) Medical Checklist, and subject matter expert opinion. Each medical condition listed has been assigned a clinical priority and a clinical priority rationale based on incidence, consequence, and mitigation capability.

Implementation: The conditions list is a "living document" and as such, new conditions can be added to the list, and the priority of conditions on the list can be adjusted as the DRM changes, and as screening, diagnosis, or treatment capabilities change. The NEA medical conditions list was used recently as the basis for identifying gaps in in-flight medical evaluation (screening) capabilities.

Learning Objectives: The audience will become familiar with the approach taken by NASA's Exploration Medical Capability element in addressing the risk of inability to recognize and treat medical conditions in the setting of a Near Earth Asteroid mission.

Which one of the following statements is incorrect?

- a) The Near Earth Asteroid (NEA) medical conditions list includes 85 medical conditions which could occur during space flight.
- b) Each condition on the NEA medical conditions list has been assigned a clinical priority and a clinical priority rationale.
- c) The NEA medical conditions list targets a mission to Mars.
- d) The NEA medical conditions list should be viewed as a "living document" where new conditions can be added and clinical priorities adjusted to address changes in the design reference mission or medical capabilities.

The incorrect answer is c). The NEA medical conditions list targets a mission to a Near Earth Asteroid.